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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/864,862	05/23/2001	Timothy E. Percy	12784.2US01	2070

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EXAMINER

LU, JIPING

ART UNIT	PAPER NUMBER
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3749

DATE MAILED: 06/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/864,862

Applicant(s)

PEARCY ET AL.

Examiner

Jiping Lu

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 February 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 5,8,9,12,13 and 15-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 5,8,9,12,13 and 15-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Status

1. The amendment filed 2/28/2006 has been entered. Claims 5, 8-9, 12-13, 15-21 are now pending in the application. Claims 1-4, 6-7, 10-11 and 14 have been canceled.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claim 20 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. the claimed step of sensing corona discharges by temperature sensors **exterior** of the microwave field in claim 20 is new matter which is not supported by the originally filed specification.

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

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5. Claims 9, 12, 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Copson (U. S. Pat. 2,859,534) in view of Levinson (U. S. Pat. 4,103,431) and Rainbolt et al. (U. S. Pat. 6,524,633).

Copson shows a method of lyophilizing material 13 comprising the steps of placing material to be processed in a chamber 10, creating a microwave field in the chamber (col. 2, lines 6-18), passing the water vapor through a condenser 18, stirring the microwave (via stirrer 10a) with a stirrer having arc inhibiting surfaces (See Fig. 1, left and right corner of 10a), and providing selected surfaces (at 14b) in the chamber with arc inhibiting surfaces. However, Copson does not teach the steps of controlling the microwave power and duration in response to the detected temperature and passing water vapor from the material being dried to or through a desiccant. Levinson teaches a product drying method of controlling microwave power and duration (by 1-3, 13) in response to the detected temperature by temperature sensor 11 same as claimed. Rainbolt et al teaches a product drying method with a step of passing water vapor from the material being dried to or through a desiccant (col. 8, lines 11-31, col. 9, lines 14-21) same as claimed. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the method of Copson with a step of controlling the microwave power and duration in response to the detected temperature as taught by Levinson in order to improve the drying efficiency and to further modify the method of Copson to include a step of passing water vapor from the material being dried to or through a desiccant as taught by Rainbolt et al. in order to more efficiently remove the water vapor.

6. Claims 5, 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Copson (U. S. Pat. 2,859,534) in view of Levinson (U. S. Pat. 4,103,431) and Rainbolt et al. (U. S. Pat. 6,524,633) as applied to claim 9 above, and further in view of Takahashi (U. S. Pat. 4,764,102).

The drying method of Copson as modified by Levinson and Rainbolt et al. as above includes all that is recited in claims 5, 8 except for the step of shielding selected surfaces in the chamber from direct exposure to microwaves. Takahashi teaches a drying method with a step of shielding the selected surfaces (809) in the chamber (803) from direct exposure to microwaves (see Fig. 26) same as claimed. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further provide the method of Copson with a step of shielding the selected surfaces in the chamber from direct exposure to microwaves as taught by Takahashi in order to obtain the uniform drying.

7. Claims 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Copson (U. S. Pat. 2,859,534) in view of Levinson (U. S. Pat. 4,103,431) and Takahashi (U. S. Pat. 4,764,102).

Copson shows a method of lyophilizing material 13 comprising the steps of placing material to be processed in a chamber 10, creating a microwave field in the chamber (col. 2, lines 6-18), passing the water vapor through a condenser 18, stirring the microwave (via stirrer 10a) with a stirrer having arc inhibiting surfaces (See Fig. 1, left and right corner of 10a), and providing selected surfaces (at 14b) in the chamber with arc inhibiting surfaces. However, Copson does not teach the steps of controlling the microwave power and duration in response to the detected corona discharges and shielding selected surfaces in the chamber from direct exposure to microwaves. Levinson teaches a product drying method of controlling microwave

power and duration (by 1-3, 13) in response to the detected corona discharges by temperature sensor 12 (col. 6, lines 29-58) same as claimed. Takahashi teaches a drying method with a step of shielding the selected surfaces (809) in the chamber (803) from direct exposure to microwaves (see Fig. 26) same as claimed. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the freeze drying method of Copson to include a step of controlling the microwave power and duration in response to the detected corona discharges as taught by Levinson in order to improve the drying efficiency and to further provide the method of Copson with a step of shielding the selected surfaces in the chamber from direct exposure to microwaves as taught by Takahashi in order to obtain the uniform drying.

8. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Copson (U. S. Pat. 2,859,534) in view of Levinson (U. S. Pat. 4,103,431) and Takahashi (U. S. Pat. 4,764,102) as applied to claim 15 above, and further in view of Rainbolt et al. (U. S. Pat. 6,524,633).

The freeze drying method of Copson as modified by Levinson and Takahashi as above includes all that is recited in claim 15 except for the step of passing water vapor from the material being dried to or through a desiccant. Rainbolt et al teaches a product drying method with a step of passing water vapor from the material being dried to or through a desiccant (col. 8, lines 11-31, col. 9, lines 14-21) same as claimed. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the freeze drying method of Copson to include a step of passing water vapor from the material being dried to or through a desiccant as taught by Rainbolt et al. in order to more efficiently remove the water vapor.

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9. Claims 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Copson (U. S. Pat. 2,859,534) in view of Levinson (U. S. Pat. 4,103,431) and Takahashi (U. S. Pat. 4,764,102) as applied to claim 15 above, and further in view of Gross et al. (U. S. Pat. 5,020,237).

The freeze drying method of Copson as modified by Levinson and Takahashi as above includes all that is recited in claims 18-19 except for a plurality of microwave generators and a control system for selectively varying power to each of the microwave generators. Gross et al. teach a fruit drying method with a step of creating a microwave field by a plurality of microwave generators 240,242,244 and linking a temperature sensor 272 and control system 280, 260, 262,264 to the plurality of microwave generators 240,242,244 for selectively varying power to each of the microwave generators 240,242,244 (see Fig. 8). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the drying method of Copson to include steps of creating a microwave field by a plurality of microwave generators and selectively varying power to each of the microwave generators by a control system as taught by Gross et al. in order to improve the drying quality.

10. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Copson (U. S. Pat. 2,859,534) in view of Levinson (U. S. Pat. 4,103,431) and Takahashi (U. S. Pat. 4,764,102) as applied to claim 15 above, and further in view of Satoh et al. (U. S. Pat. 4,213,023).

The freeze drying method of Copson as modified by Levinson and Takahashi as above includes all that is recited in claim 20 except for sensing corona discharges by temperature sensors exterior of the microwave field. Satoh et al. teach a concept of using a temperature sensor 12 exterior of the microwave field (within chamber 1) for measuring the temperature.

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Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the corona discharges sensing step of Copson to place the temperature sensor exterior to the microwave field as taught by Masuda in order to more accurately measure the temperature. With regard to the claimed sensors, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the drying method of Copson with more than one temperature sensor, since it has been held that mere duplication of the essential working parts of a device involve only routine skill in the art. In re Harza, 274 F. 2d 669, 124 USPQ 378 (CCPA 1960).

11. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Copson (U. S. Pat. 2,859,534) in view of Levinson (U. S. Pat. 4,103,431) and Takahashi (U. S. Pat. 4,764,102) as applied to claim 15 above, and further in view of Masuda (U. S. Pat. 4,769,609).

The freeze drying method of Copson as modified by Levinson and Takahashi as above includes all that is recited in claim 21 except for photo detector for sensing corona discharges. Masuda teaches a concept of using photo detector 42 for sensing corona discharges. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify the drying method of Copson to substitute the photo detector of Masuda for the temperature sensor of Levinson in order to more accurately measure the corona discharges. With regard to the claimed photo detectors, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the drying method of Copson with more than one photo detectors, since it has been held that mere duplication of the essential working parts of a device involve only routine skill in the art. In re Harza, 274 F. 2d 669, 124 USPQ 378 (CCPA 1960).

Response to Arguments

12. Applicant's arguments filed 2/28/2006 have been fully considered but they are not persuasive to overcome the rejection. The applicant argued that the prior art references failed to teach the claimed features in claim 9. The examiner disagrees. Copson patent shows a method of lyophilizing material 13 to be processed in a chamber 10 by a microwave field, passing the water vapor through a condenser 18, stirring the microwave (via stirrer 10a) with a stirrer having arc inhibiting surfaces (See Fig. 1, left and right corner of 10a), and providing selected surfaces (at 14b) in the chamber with arc inhibiting surfaces. Levinson patent teaches a product drying method of controlling microwave power and duration (by 1-3, 13) in response to the detected temperature by temperature sensor 11 same as claimed. The patent to Rainbolt et al teaches a product drying method with a step of passing water vapor from the material being dried to or through a desiccant (col. 8, lines 11-31, col. 9, lines 14-21) same as claimed. Therefore, in view of the combined teaching of the references it would have been obvious to one skilled in the art at to provide the method of Copson with a step of controlling the microwave power and duration in response to the detected temperature as taught by Levinson in order to improve the drying efficiency and to further modify the method of Copson to include a step of passing water vapor from the material being dried to or through a desiccant as taught by Rainbolt et al. in order to more efficiently remove the water vapor. Second, the applicant argued that the prior art references failed to teach the claimed features in claim 15. The examiner disagrees. The patent to Takahashi teaches a drying method with a step of shielding the selected surfaces (809) in the chamber (803) from direct exposure to microwaves (see Fig. 26) same as claimed. Therefore, it is the examiner's position that it would have been obvious to one skilled in the art to further

provide the method of Copson with a step of shielding the selected surfaces in the chamber from direct exposure to microwaves as taught by Takahashi in order to obtain the uniform drying.

Conclusion


13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jiping Lu whose telephone number is 571 272 4878. The examiner can normally be reached on Monday-Friday, 9:00 AM - 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, EHUD GARTENBERG can be reached on 571 272-4828. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Jing Lu
Primary Examiner
Art Unit 3749

J. L.